Supporting Information

Facile fabrication of composite electrospun nano-fibrous matrices of poly(ε-caprolactone)–silica based Pickering emulsion

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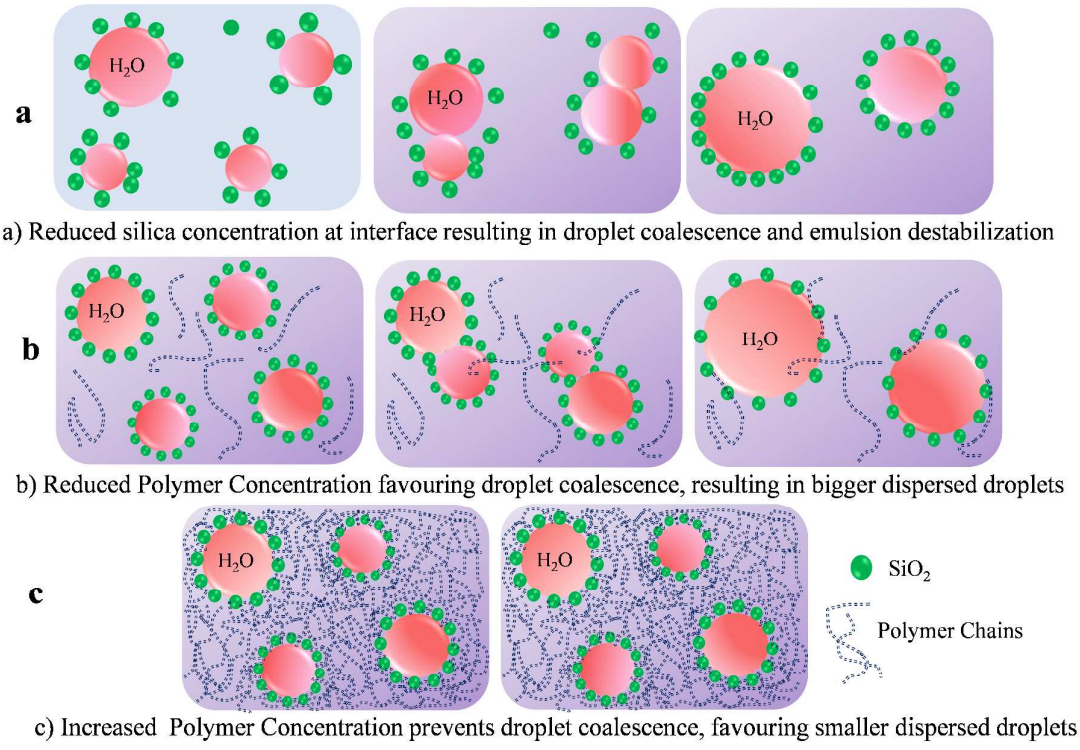

Scheme S1: Effect of m-silica and polymer concentration on emulsion stability (a) low concentration of Pickering stabilizer leading to emulsion destabilization (b) reduced polymer concentration leading to droplet coalescence (c) higher polymer concentration preventing droplet coalescence

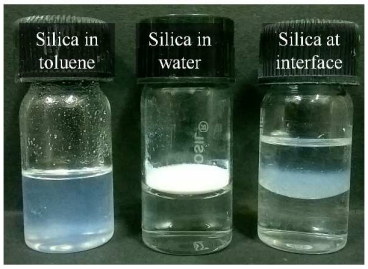

Figure S1 (a): Visual observation of colloids (i) m-silica in toluene, (ii) m-silica in water and (iii) m-silica in 1:1 volume mixture of toluene and water

Figure S1 (b): Pink: Water + Rhodamine B and Transparent: PCL in toluene

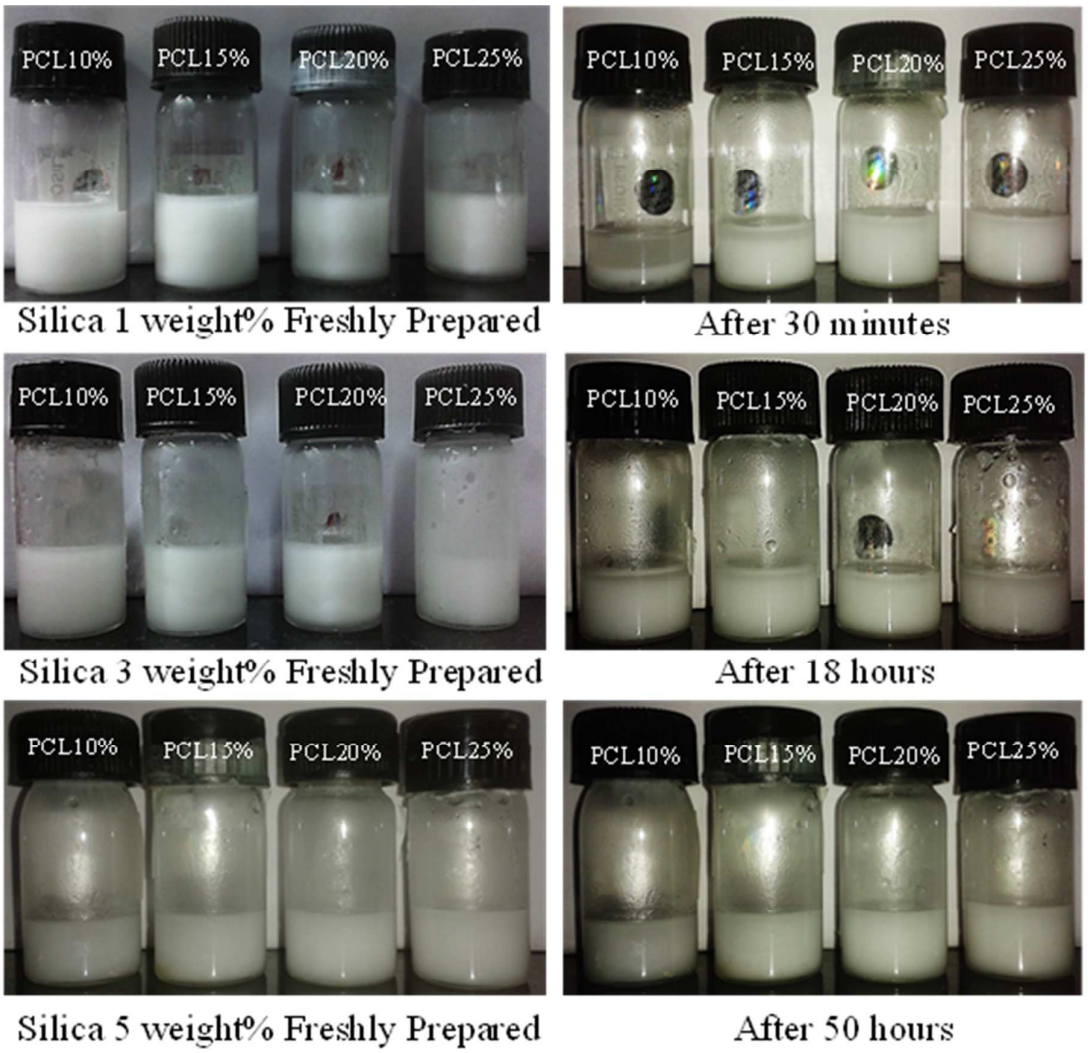

Figure S2: Formation of stable water-in-oil emulsions of PCL using m-silica as the Pickering agent

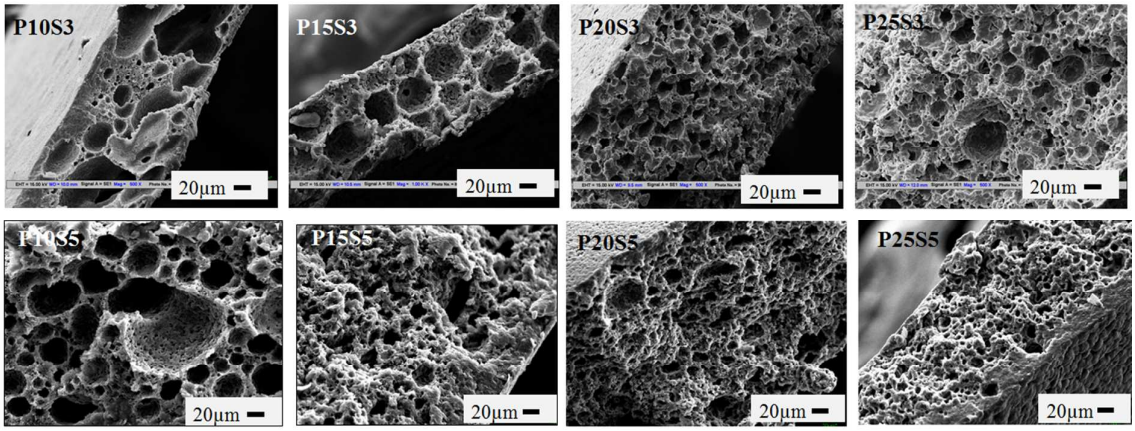

Figure S3: Cryo-fractured cross-sections of PCL/m-silica emulsion films stabilized with 3wt.% or 5wt.% m-silica

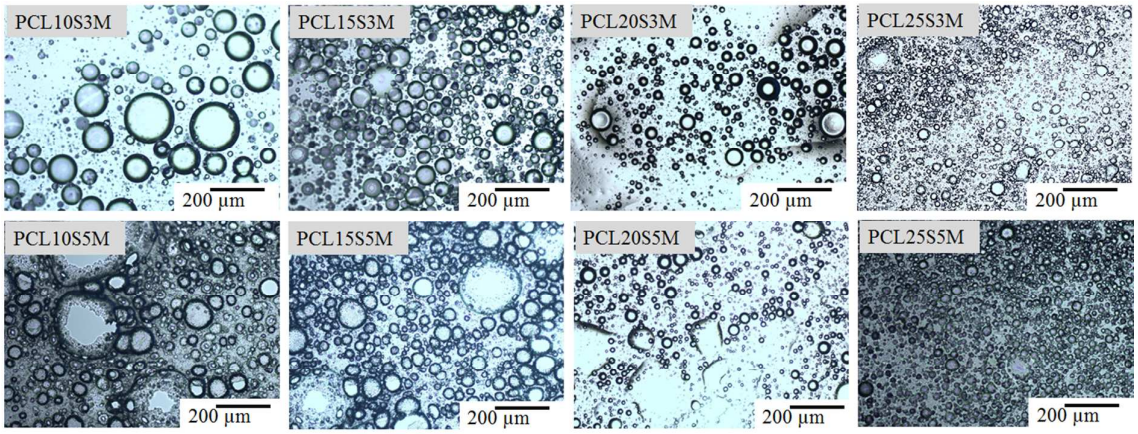

Figure S4: Optical microscopic images of m-silica stabilized emulsions with maximum volume fraction of aqueous phase reflecting the reduction in droplet size with increase in polymer concentration

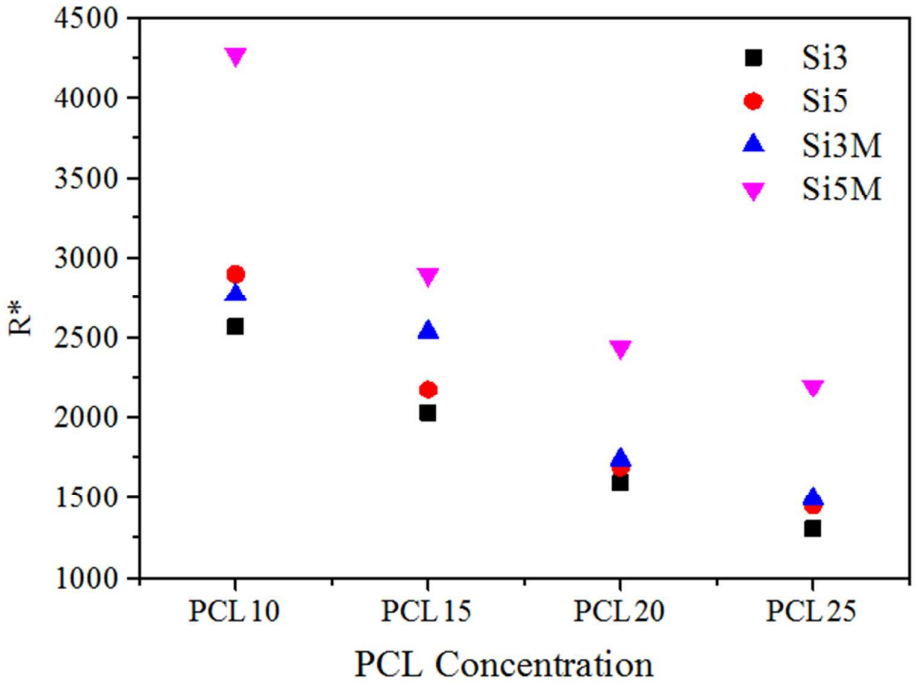

Figure S5: Variation of R* (Ratio of surface area of n_0 number of m-silica particles per unit water-oil interfacial area) with respect to PCL and m-silica concentration

Si3 and Si5 represents samples stabilized with 3 and 5 weight percent silica with respect to oil phase respectively, with ϕ_d=0.26 against corresponding PCL concentration as denoted on the x-axis.

Si3M and Si5M represents samples stabilized with 3 and 5 weight percent silica with respect to oil phase respectively, with maximum ϕ_d against corresponding PCL concentration as denoted on the x-axis

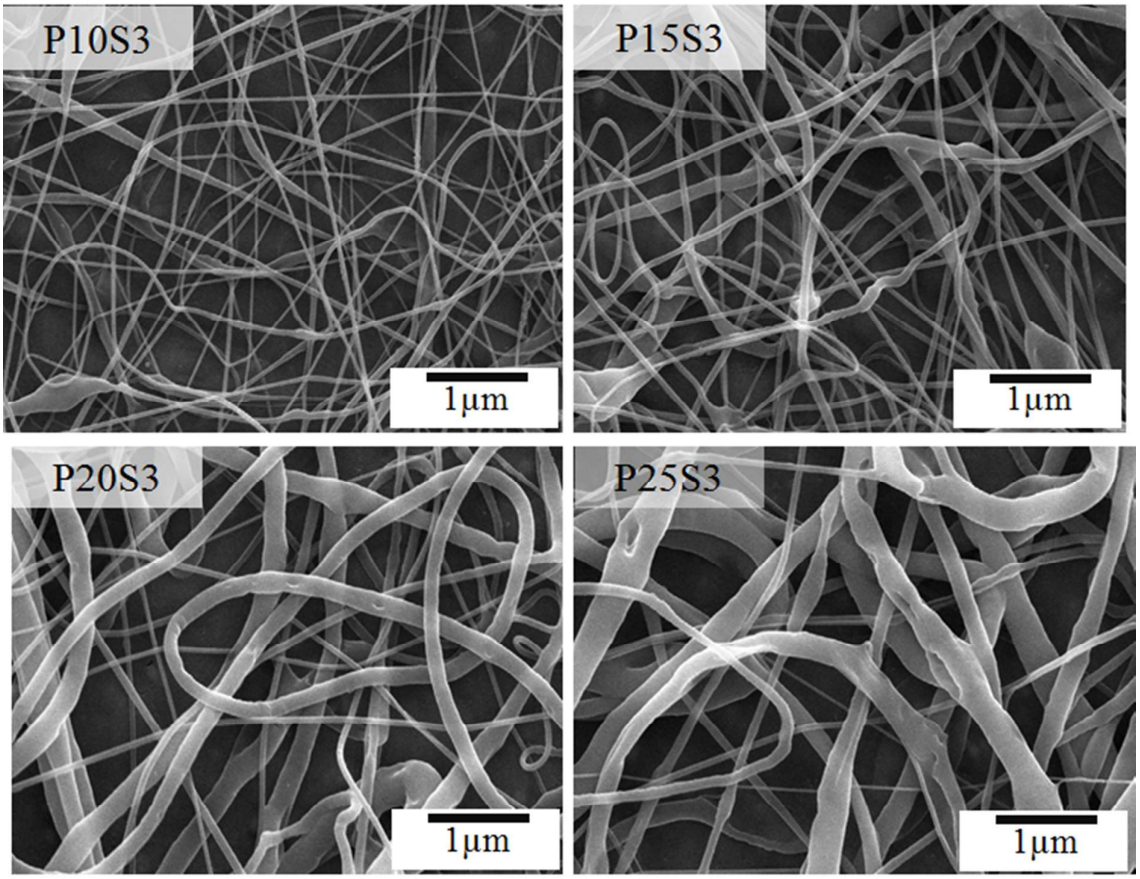

Figure S6: SEM images of PCL/m-silica electrospun composite matrices made using 3 wt.% m-silica stabilized emulsions

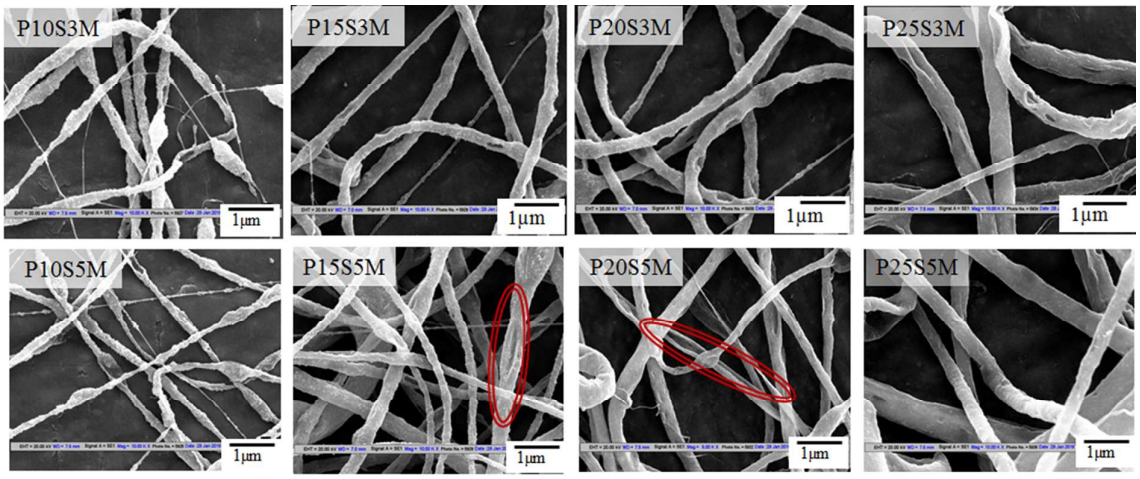

Figure S7: SEM images of PCL/m-silica electrospun composite matrices made using 3 or 5 wt.% m-silica stabilized emulsions with maximum volume fraction of aqueous phase

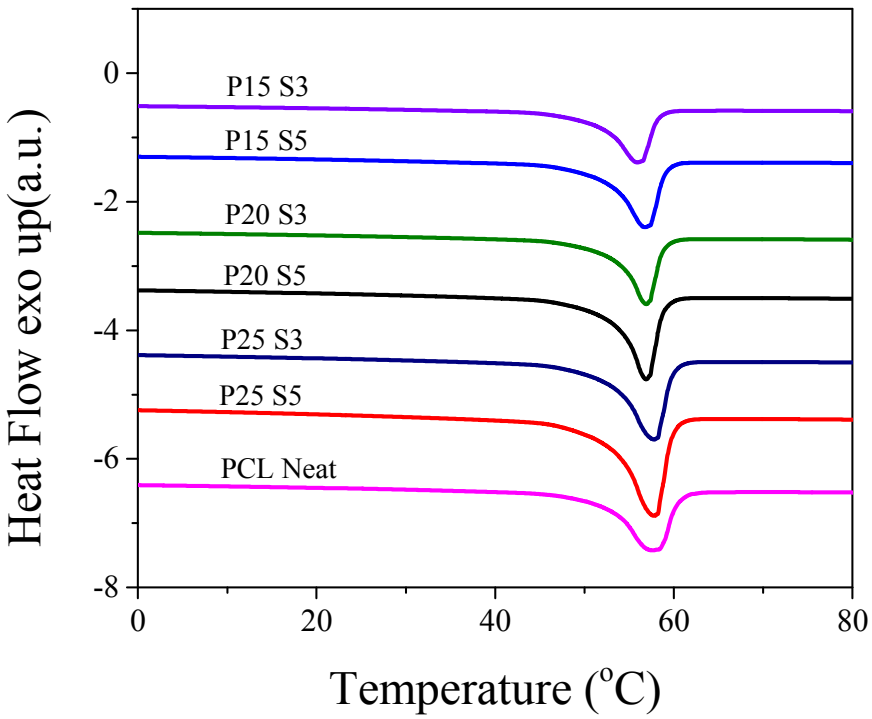

Figure S8: Effect of inclusion of m-silica on melting behaviour of PCL matrix

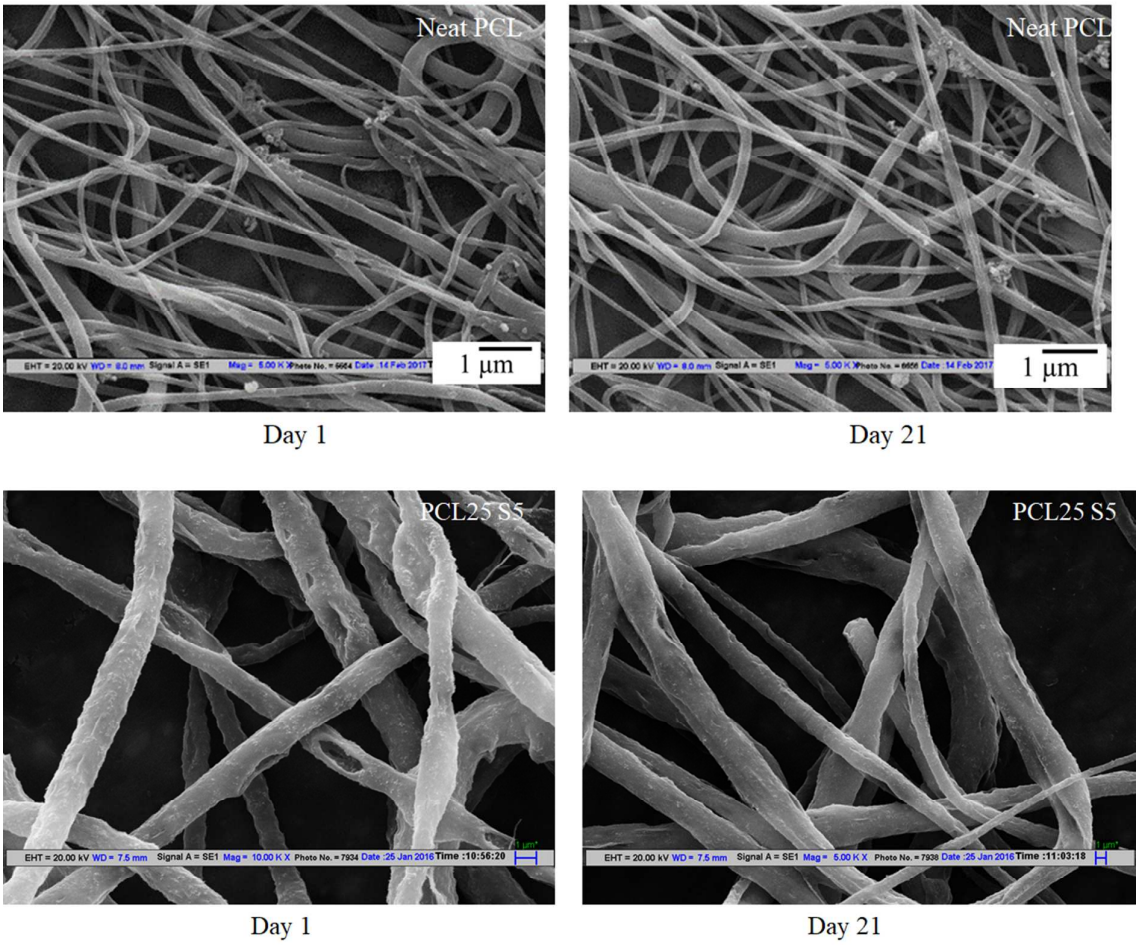

Figure S9: SEM images reflecting stability of PCL and PCL silica composite electrospun matrices to aqueous environment

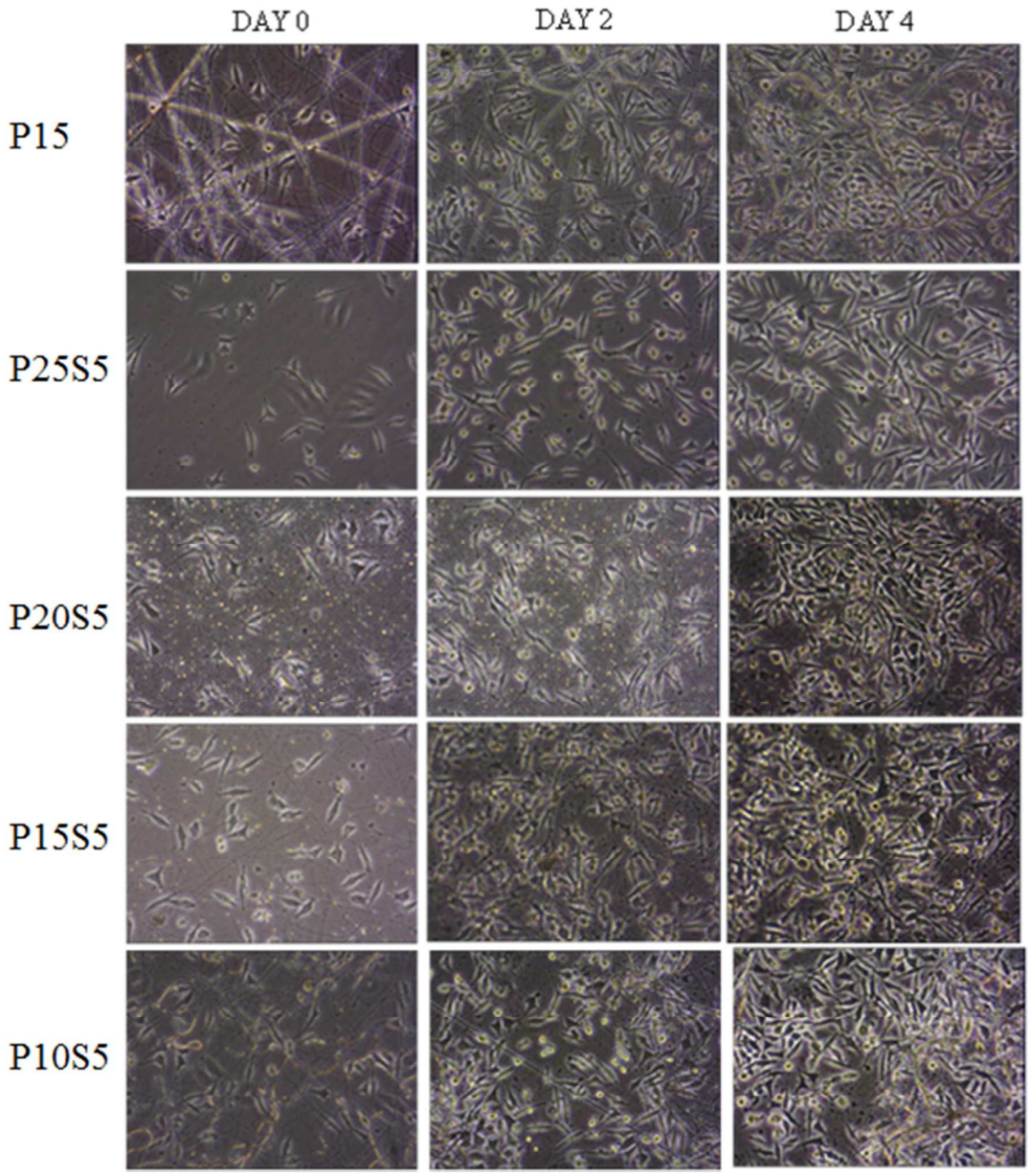

Figure S10: Microscopic images showing fibroblast (L929) cell growth in different PCL/m-silica composite matrices in comparison to a matrix made using neat PCL